Listing of the Claims

1. (Currently Amended) A magnetic localization device, comprising:

a) a field generator ~~(2)~~ for generating a magnetic field;

b) a field sensor ~~(4)~~ for measuring the magnetic field;

c) a reference sensor ~~(3)~~ for measuring the magnetic field at a known reference position;

d) a control unit ~~(5)~~, which is arranged for determining the position ~~(x')~~ of the field sensor ~~(4)~~ relative to the field generator ~~(2)~~ and thereby for compensating external field distortions by taking the reference sensor ~~(3)~~ into consideration.

2. (Currently Amended) A localization device as claimed in claim 1, ~~characterized in that~~ wherein the spatial position of the field generator ~~(2)~~ is known.

3. (Currently Amended) A localization device ~~(1)~~ as claimed in claim 1, ~~characterized in that~~ wherein the field generator ~~(2)~~ and/or the reference sensor ~~(3)~~ are fastened to the gantry ~~(1)~~ of a computer tomograph.

4. (Currently Amended) A localization device as claimed in claim 1, ~~characterized in that~~ wherein the control unit ~~(5)~~ contains a memory with a calibration function ~~($\delta(x,\Phi)$)~~, which provides a correction shift ~~(δ)~~ for the uncorrected determined position ~~(x)~~ of the field sensor ~~(4)~~ based on measured signals of the reference sensor ~~(3)~~ and the field sensor ~~(4)~~.

5. (Currently Amended) An examination device, comprising:

- an imaging device, in particular a computer tomograph ~~(1)~~;

- a magnetic localization device ~~(2, 3, 4, 5)~~ as claimed in ~~any one of the~~ claims ~~1 to 4~~.

6. (Currently Amended) A method for position measurement with a magnetic localization device ~~(2, 3, 4, 5)~~, comprising the steps of:

a) collecting the signals of a field sensor ~~(4)~~ and/or a field generator ~~(2)~~;

b) collecting the signals of a magnetic reference sensor ~~(3)~~, which is placed at a known spatial position relative to the field generator ~~(2)~~ or to the field sensor ~~(4)~~;

c) determining the position ~~(x')~~ of the field sensor ~~(4)~~ relative to the field generator ~~(2)~~, where external field distortions are compensated by taking the signals of the reference sensor ~~(3)~~ into consideration.

7. (Currently Amended) A method as claimed in claim 6, ~~characterized in that~~ wherein a correction function ~~($\delta(\underline{x},\Phi)$)~~ is determined, which indicates a correction shift ~~(δ)~~ for the uncorrected determined position of the field sensor ~~(4)~~ in dependence on the signal of the reference sensor ~~(3)~~ and the uncorrected determined position ~~($\underline{x}$)~~ of the field sensor ~~(4)~~.

8. (Currently Amended) A method as claimed in claim 7, ~~characterized in that~~ wherein the correction function ~~($\delta(\underline{x},\Phi)$)~~ for support points in a volume of interest ~~(VOI)~~ is empirically determined and extended by extrapolation or interpolation respectively on the whole volume ~~(VOI)~~.

9. (Currently Amended) A method as claimed in claim 6, ~~characterized in that~~ wherein a parameter ~~(Φ)~~ is determined from the signal of the reference sensor ~~(3)~~, which parameter characterizes the external field distortion.

10. (Currently Amended) A method as claimed in claim 9, ~~characterized in that~~ wherein the parameter ~~(Φ)~~ describes the angle of rotation of a computer tomograph ~~(1)~~ situated in the vicinity of the localization device.